CLAIMS:

1. A catheter for ablating tissue, the catheter comprising:

an elongated generally-tubular catheter body having proximal and distal ends; and

an electrode assembly at the distal end of the catheter body, the electrode assembly including a porous electrode arrangement that is generally transverse to the catheter body, the porous electrode arrangement comprising:

one or more electrodes electrically connected to a suitable energy source;

a porous sleeve mounted in surrounding relation to the one or more electrodes and defining an open space between the porous sleeve and the one or more electrodes; and

one or more irrigation openings fluidly connecting the open space to a lumen extending through the catheter through which fluid can pass;

wherein, in use, fluid passes through the lumen in the catheter, through the one or more irrigation openings, into the open space and through the porous sleeve.

2. The catheter according to claim 1, wherein the electrode assembly further comprises a non-conductive tubing mounted on the distal end of the catheter over which the one or more electrodes are mounted, and wherein the non-conductive tubing includes at least one lumen fluidly connected to the lumen in the catheter body and to the one or more irrigation openings.

3. The catheter according to claim 2, wherein the one or more electrodes comprises a single coiled electrode wrapped around a portion of the non-conductive tubing.

4. The catheter according to claim 2, wherein the porous sleeve has proximal and distal ends that are bonded to the non-conductive tubing.

5. The catheter according to claim 2, wherein the porous electrode is generally straight.

6. The catheter according to claim 5, wherein the generally straight porous electrode forms an angle with the axis of the catheter body ranging from about 75° to about 110°.

7. The catheter according to claim 5, wherein the non-conductive tubing forms a curve that first bends away from and then back toward and past the axis of the catheter body, and has a straight distal end over which the porous electrode is mounted.

8. The catheter according to claim 1, wherein the porous electrode is generally straight and generally transverse to the axis of the catheter body.

9. The catheter according to claim 1, wherein the porous sleeve comprises expanded polytetrafluoroethylene.

10. The catheter according to claim 1, wherein the porous sleeve comprises expanded polytetrafluoroethylene that is expandable to no more than 10% at a distilled water flow rate of 30 to 40 cc/min.

11. The catheter according to claim 1, wherein the porous sleeve comprises a material selected from the group consisting of porous nylon, sintered ceramics, woven meshes and cellular foam.

12. The catheter according to claim 1, wherein the porous electrode has a length ranging from about 10 to about 25 mm.

13. The catheter according to claim 1, wherein the porous electrode has a length ranging from about 10 to about 15 mm.

14. The catheter according to claim 1, wherein the electrode assembly further comprises one or more ring electrodes mounted proximal and/or distal to the porous electrode.

15. The catheter according to claim 1, wherein the electrode assembly further comprises one or more temperature sensors.

16. The catheter according to claim 15, wherein the one or more temperature sensors are mounted under the porous sleeve.

17. A catheter for ablating tissue, the catheter comprising:

an elongated generally-tubular catheter body having proximal and distal ends; and

an electrode assembly at the distal end of the catheter body, the electrode assembly comprising a non-conductive tubing mounted on the distal end of the catheter body and having a lumen extending therethrough, and a generally-straight porous electrode mounted on the non-conductive tubing and being generally transverse to the axis of the catheter body, the porous electrode comprising:

one or more electrodes electrically connected to a suitable energy source;

a porous sleeve mounted in surrounding relation to the one or more electrodes and defining an open space between the porous sleeve and the one or more electrodes; and

one or more irrigation openings fluidly connecting the open space to the lumen extending through the non-conductive tubing.

18. The catheter according to claim 17, wherein the one or more electrodes comprises a single coiled electrode wrapped around a portion of the non-conductive tubing.

19. The catheter according to claim 17, wherein the porous sleeve has proximal and distal ends that are bonded to the non-conductive tubing.

20. The catheter according to claim 17, wherein the generally straight porous electrode forms an angle with the axis of the catheter body ranging from about 75° to about 110°.

21. The catheter according to claim 17, wherein the non-conductive tubing forms a curve that first bends away from and then back toward and past the axis of the catheter body, and has a straight distal end over which the porous electrode is mounted.

22. The catheter according to claim 17, wherein the porous sleeve comprises expanded polytetrafluoroethylene.

23. The catheter according to claim 17, wherein the porous sleeve comprises expanded polytetrafluoroethylene that is expandable to no more than 10% at a distilled water flow rate of 30 to 40 cc/min.

23. The catheter according to claim 17, wherein the porous sleeve comprises a material selected from the group consisting of porous nylon, sintered ceramics, woven meshes and cellular foam.

24. The catheter according to claim 17, wherein the porous electrode has a length ranging from about 10 to about 25 mm.

25. The catheter according to claim 17, wherein the porous electrode has a length ranging from about 10 to about 15 mm.

26. The catheter according to claim 17, wherein the electrode assembly further comprises one or more ring electrodes mounted proximal and/or distal to the porous electrode.

27. The catheter according to claim 17, wherein the electrode assembly further comprises one or more temperature sensors.

28. The catheter according to claim 27, wherein the one or more temperature sensors are mounted under the porous sleeve.

29. The catheter according to claim 27, further comprising a pre-shaped support wire extending through a second lumen in the non-conductive tubing.

30. The catheter according to claim 29, wherein the pre-shaped support wire comprises nitinol.

31. The catheter according to claim 17, wherein the one or more irrigation openings are located only on the side of the porous electrode that is to be in contact with tissue to be ablated.

32. A method for ablating heart tissue comprising inserting the distal end of a catheter according to claim 1 into the heart of a patient and forming at least one linear lesion in the atrial tissue with the porous electrode by simultaneously supplying ablation energy to the one or more

electrodes and introducing fluid through the irrigation openings so that the fluid passes through the porous sleeve.

33. A method for treating atrial fibrillation comprising inserting the distal end of a catheter according to claim 1 into an atrium of the heart of a patient and forming at least one linear lesion in the atrial tissue with the porous electrode by simultaneously supplying ablation energy to the one or more electrodes and introducing fluid through the irrigation openings so that the fluid passes through the porous sleeve.